

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit	:	1793	Customer No. 035811
Examiner	:	Deborah Yee	
Serial No.	:	10/566,852	
Filed	:	February 22, 2006	Docket No.: JFE-05-1840
Inventors	:	Hiromi Yoshida Kaneharu Okuda Toshiaki Urabe Yoshihiro Hosoya	
Title	:	HIGH-STRENGTH STEEL SHEET HAVING EXCELLENT IN DEEP DRAWING CHARACTERISTICS AND METHOD FOR PRODUCTION THEREOF	Confirmation No.: 9915

Dated: April 22, 2009

RESPONSE

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is in response to the Official Action dated March 11, 2009.

All claims stand rejected under 35 USC §103(a) as being unpatentable over JP '941. The rejection states that, although JP '941 teaches a steel composition including V, it would be obvious to exclude V from the steel if the properties it is known to confer to steel, namely improved drawability, are not desired.

The Applicants respectfully submit that the fact that V can be omitted from a steel composition is irrelevant to determining whether it would have been obvious to one skilled in the art to omit V from the steel of JP '941. Instead, one skilled in the art must have both the motivation to modify a reference in such a way as to achieve the claimed subject matter and a reasonable expectation of successfully obtaining that subject matter. The Applicants respectfully submit that both criteria are lacking.

First, the Applicants respectfully submit that one skilled in the art would not be motivated to omit an element known to provide good drawability and a high r-value because such a modification would change a fundamental principle of operation of the reference. JP '941 teaches inclusion of V results in drawability properties which are an important feature of the

invention and cannot be fully replicated by substituting V with Nb and Ti. Therefore, a principle of operation of JP ‘941 is to obtain a steel with increased drawability by including V in the composition. Indeed, JP ‘941 provides use of Nb and Ti only in conjunction with V and does not suggest a V-free steel would be suitable for achieving the necessary drawability properties. Accordingly, the Applicants respectfully submit that there is no motivation to make the proposed modification of JP ‘941 to omit V because it would change the principle of operation of JP ‘941.

Secondly, even if one skilled in the art were hypothetically motivated to modify the JP ‘941 steel by omitting V from the composition, he or she would have no reasonable expectation of successfully obtaining a steel sheet that retains good drawability and an r-value of 1.2 or more, as recited in the rejected claims. The Applicants respectfully submit that the mere fact that JP ‘941 suggests that Nb and Ti can improve drawability would not give one skilled in the art the reasonable expectation of achieving a V-free steel sheet with a high r-value merely by including Nb and Ti because JP ‘941 expressly teaches that Nb and Ti cannot fully improve deep drawability without also including V. Therefore, unless the steel included other elements that produce the same drawability qualities as V, one skilled in the art would have no reasonable expectation of successfully achieving a V-free steel sheet with good drawability or an r-value of more than 1.2.

The rejection also states that because JP ‘941 teaches that Nb and Ti have some effect on improving drawability, a V-free steel having Nb and Ti would “produce no more than the known and expected effect, which is lower drawability.” The rejection points to the fact that examples in JP ‘941 have r-values of 1.7-1.9, which is higher than the claimed r-value of 1.2, as evidence of the “known and expected effect” that omission of V has on the r-value. Furthermore, the rejection states that the comparison of Steel G from JP ‘941 with Steels J, K, and L does not support the conclusion that the inclusion of Nb and Ti can maintain a high r-value even where V is omitted because Steels J, K, and L have a higher amount of Nb and Ti than Steel G has V.

To further clarify the Applicants’ discussion of what one skilled in the art in view of JP ‘941 would understand regarding the effects of V, Nb, and Ti, the Applicants respectfully invite the Examiner to consider Steels A, C and G in Table 1 of JP ‘941. Like Steel G, Steel A contains V and lacks both Nb and Ti. Steel G has only one third of the amount of V as Steel A and has an r-value of only 0.8, as compared to Steel A’s r-value of 1.2. One skilled in the art would be lead to conclude that the difference in r-value of Steel G and to Steel A is due to the lower amount of V in Steel G. Furthermore, the fact that Steels C and F of Table 1 of JP ‘941 both contain V, Nb,

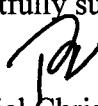
and Ti, but have the same r-value as Steel A would lead one skilled in the art to believe that Nb and Ti do not significantly contribute to increasing the r-value. Taken together, the properties of the examples in JP '941 suggest to one skilled in the art that a steel that is entirely free of V, regardless of whether it has Nb and Ti, would have an r-value that is as low or lower than the r-value of 0.8 yielded by Steel G.

Accordingly, the fact that the steel recited in the rejected claims maintains a high r-value of 1.2 despite being free of V is an unexpected result. Contrary to the assertion in the rejection that the recited V-free steel is merely a predictably inferior product to JP '941, the claimed steel has drawability properties that exceed what one skilled in the art in view of JP '941 would have expected. Moreover, the claimed V-free steel not only exhibits drawability that is unexpectedly high given its lack of V, it can be manufactured at a reduced cost and with increased productivity.

There is also another fundamental point. There must be an "apples to apples" comparison of the claimed subject matter with the prior art, not an "apples to oranges" comparison as done in the rejection. The amount of contained alloy element such as V, Nb and Ti must be discussed not by their mass %, but by their number of atoms. Namely, V/51, Nb/93, Ti/48 and C/12 are equal in the number of atoms where V, Nb, Ti and C represent its mass % respectively. As discussed in page 4, paragraph 10 in the Office Action, the amount of V in steel G of JP '941 is substantially the same or more number of atoms compared to the amount of Nb in steel L in Table 1 of the Applicants' Specification. This, thus, demonstrates the differences of the claimed subject matter over JP '941.

In light of the foregoing, the Applicants respectfully submit that the rejected claims are not obvious over JP '941 and request reconsideration and withdrawal of the rejected claims. The Applicants also respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,


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